

OXFORD DICTIONARY OF
BIOCHEMISTRY AND
MOLECULAR BIOLOGY
REVISED EDITION

Managing Editor **Dr A D Smith** University College London

General Editors **Professor S P Datta** University College London

Dr G H Smith University College London

Professor P N Campbell (Chairman) University College London

Dr R Bentley University of Pittsburgh

Dr H A McKenzie Australian Defence Force Ac.

Subject Editors **Dr D A Bender** University College London

Dr A J Harris University of Queensland

Professor T W Goodwin University of Liverpool

Dr H A McKenzie Australian Defence Force Ac.

Dr J H Parish University of Leeds

Dr C Stanford University College London

EXHIBIT A

OXFORD
UNIVERSITY PRESS

Editors

General Editors

Dr A. D. Smith (Managing Editor) *Emeritus Reader in Biochemistry, and Honorary Research Fellow, Department of Molecular Pathology, University College London Medical School*

Professor S. P. Datta *Emeritus Professor of Medical Biochemistry, and Honorary Research Fellow, Department of Biochemistry and Molecular Biology, University College London*

Dr G. Howard Smith *Honorary Research Fellow, Department of Biochemistry and Molecular Biology, University College London*

Professor P. N. Campbell *Emeritus Professor of Biochemistry, and Honorary Research Fellow, Department of Biochemistry and Molecular Biology, University College London*

Professor R. Bentley *Professor Emeritus of Biochemistry, Department of Biological Sciences, University of Pittsburgh*

Dr H. A. McKenzie *Fellow, School of Chemistry, University of New South Wales, Australian Defence Force Academy, and Visitor, Molecular Medicine, John Curtin School of Medical Research, The Australian National University, Canberra*

Subject Editors

Dr D. A. Bender *Senior Lecturer, Department of Biochemistry and Molecular Biology, University College London*

Dr A. J. Carozzi *NH and MRC Research Officer, Centre for Molecular and Cellular Biology, University of Queensland*

Professor T. W. Goodwin FRS *Emeritus Johnson Professor of Biochemistry, University of Liverpool*

Dr J. H. Parish *Senior Lecturer, School of Biochemistry and Molecular Biology, University of Leeds*

Dr S. C. Stanford *Senior Lecturer, Department of Pharmacology, University College London*

OXFORD
UNIVERSITY PRESS

Great Clarendon Street, Oxford OX2 6DP

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide in
Oxford New York

Athens Auckland Bangkok Bogot  Buenos Aires Calcutta
Cape Town Chennai Dar-es-Salaam Delhi Florence Hong Kong Istanbul
Karachi Kuala Lumpur Madrid Melbourne Mexico City Mumbai
Nairobi Paris S o Paulo Singapore Taipei Tokyo Toronto Warsaw
with associated companies in Berlin Ibadan

Oxford is a registered trade mark of Oxford University Press
in the UK and in certain other countries

Published in the United States
by Oxford University Press Inc., New York

  The General Editors, 1997

The authors have asserted their right under the Copyright, Designs and Patents Act, 1988,
to be identified as authors of this work

First published 1997
Revised edition 2000

All rights reserved. No part of this publication may be reproduced,
stored in a retrieval system, or transmitted, in any form or by any means,
without the prior permission in writing of Oxford University Press,
or as expressly permitted by law, or under terms agreed with the appropriate
reprographics rights organization. Enquiries concerning reproduction
outside the scope of the above should be sent to the Rights Department,
Oxford University Press, at the address above

You must not circulate this book in any other binding or cover
and you must impose this same condition on any acquirer

A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data
(Data applied for)

ISBN 0 19 850673 2

Typeset by Market House Books Ltd, Aylesbury
Printed in Great Britain by
Butler & Tanner Ltd, Frome

Na
G
ini
an
wi
Di
th
ch
jex
pr
ini

an
na
ab
ex
of
wa
spa
tio
ba
co
an
che
ori
ha
ter
so
to
ary
ref
no
vpr
tio
vau
hex
nu

the

